AR191005

BLP0427M9S20G, 1450-1550MHz

v1.0 — 06-February-2019

AMPLEON

Application Report

Document information	
Status	Company Public
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Abstract	Measurement results of a Class AB design for the 1450-1550MHz band with the BLP0427M9S20G

1. Revision History

Table 1: Report revisions

Revision	Date	Description	Author
1.0	20190206	Initial document	Harrie Rahangmetan

2. Contents

3. List of figures

4. List of tables

5. Introduction

5.1 General description

This document shows the measurement results of a 1450-1550MHz demo amplifier (Board AR191005) with 1x BLP0427M9S20G.

5.2 Test object details

Transistor type:	BLP0427M9S20G (Soldered down)
Production code:	TNH1830
Package:	SOT1483-1
Board:	BLP0427M9S20_1800MHz_PCB
Demo number:	AR191005

5.3 Used Test signals

CW:	CW
CW-Pulsed:	100us,10%

5.4 Test circuit

A description of this circuit can be found in Appendix A.

Supply voltage (drain-source) is typical 28V. The total Idq will be 120mA (Vgs=2.25V).

6. Measurement Results

6.1 Summary CW Power Sweeps

Freq [MHz]	P1dB [dBm]*	P1dB [W]*	G@P1dB [dB]*	Eff@P1dB [%]*	P3dB [dBm]*	P3dB [W]*	G@P3dB [dB]*	Eff@P3dB [%]*
1450.00	44.6	28.78	18.3	53.1	45.3	33.61	16.3	54.8
1500.00	43.9	24.37	18.8	51.7	44.5	28.50	16.8	53.0
1550.00	43.4	21.86	18.0	47.3	44.8	30.12	16.0	53.3

6.2 Gain & Efficiency @ Frequency=1450-1500-1550MHz CW

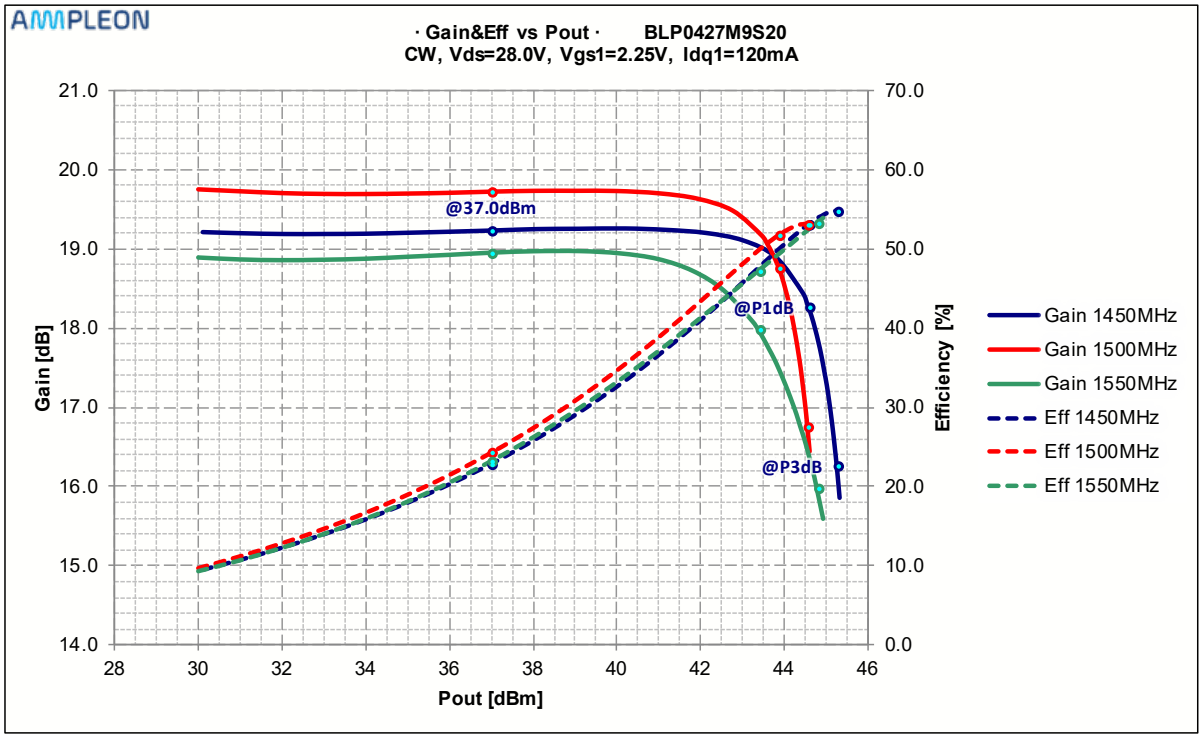

Figure 1 CW Gain and Efficiency vs Pout [dBm]

6.3 Summary CW-Pulsed Power Sweeps

Freq [MHz]	P1dB [dBm]*	P1dB [W]*	G@P1dB [dB]*	Eff@P1dB [%]*	P3dB [dBm]*	P3dB [W]*	G@P3dB [dB]*	Eff@P3dB [%]*
1450.00	44.7	29.77	18.5	53.2	45.5	35.64	16.5	55.4
1500.00	44.1	25.55	18.9	52.1	44.7	29.49	16.9	53.0
1550.00	43.7	23.44	18.2	48.3	45.1	32.12	16.2	54.5

6.4 Gain & Efficiency @ Frequency=1450-1500-1550MHz CW-Pulsed

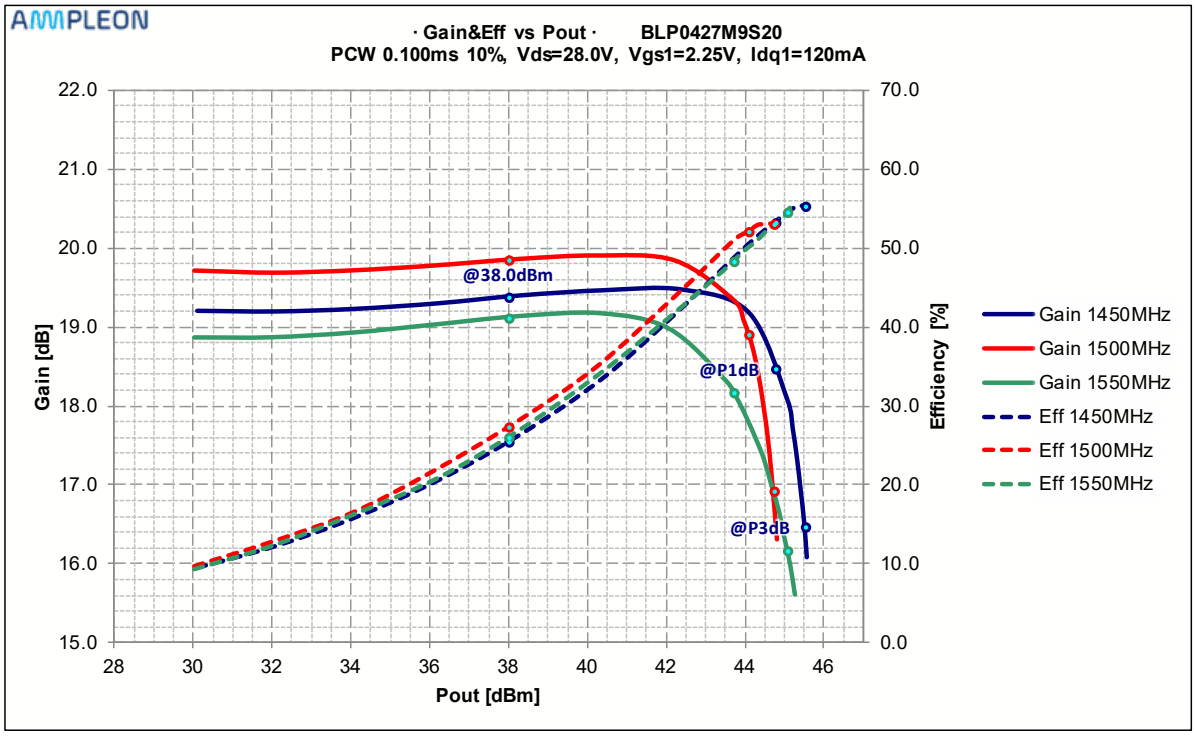

Figure 2 CW-Pulsed Gain and Efficiency vs Pout [dBm]

6.5 Appendix A – PCB Layout

6.6 PCB Layout Drawing

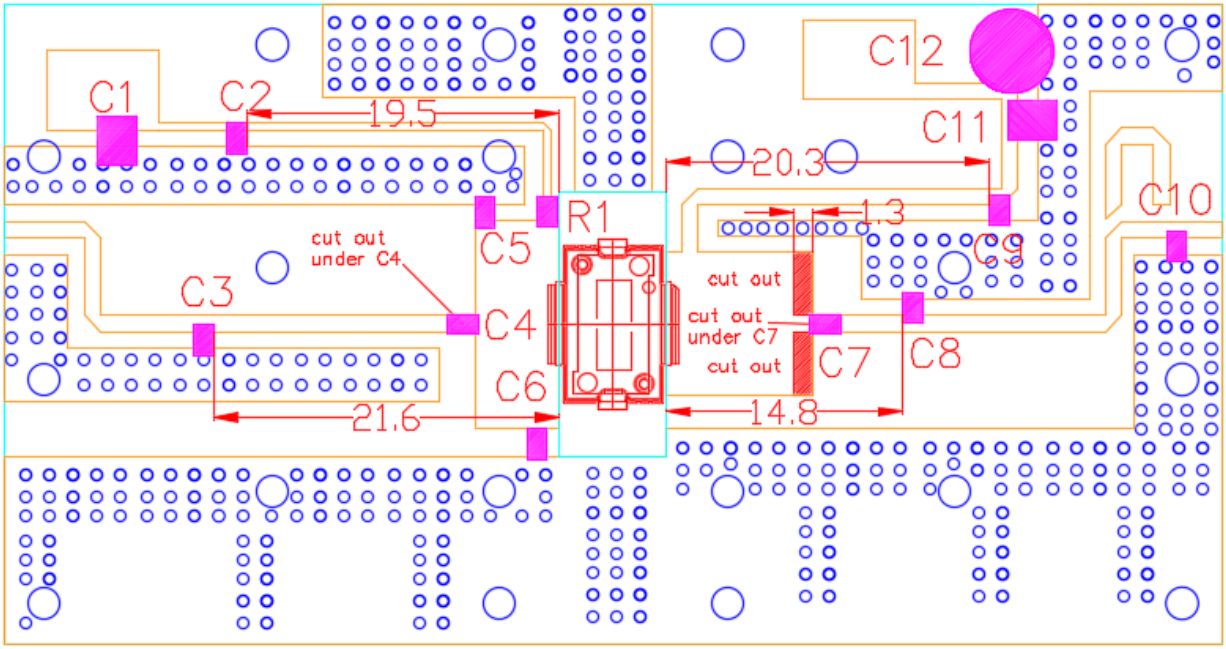

Figure 3 PCB Layout Drawing

6.7 Component list

Table 2: Component list

Designator	Description	Manufacturer	Part #
C1, C11	1uF	Murata	
C2, C7, C9	12pF (C1)	ATC	600F
C3	1.3pF (D0)	ATC	600F
C4	6.2pF (V0)	ATC	600F
C5	3.9pF (Q0)	ATC	600F
C6	4.3pF (R0)	ATC	600F
C8	5.6pF (U0)	ATC	600F
C10	0.8pF (t0)	ATC	600F
C36	220uF, 63 V electrolytic SMT		
R1	5.1Ohm 0805		
PC-board Material: 20 mil thick. RO4350, 1oz copper each side			

6.8 Remark

Please be aware the positions of C2, C3, C7, C11 are very sensitive for the performance of the PA.

The used PCB is initially for a straight lead package (BLP0427M9S20)

7. Photo's Demo Board

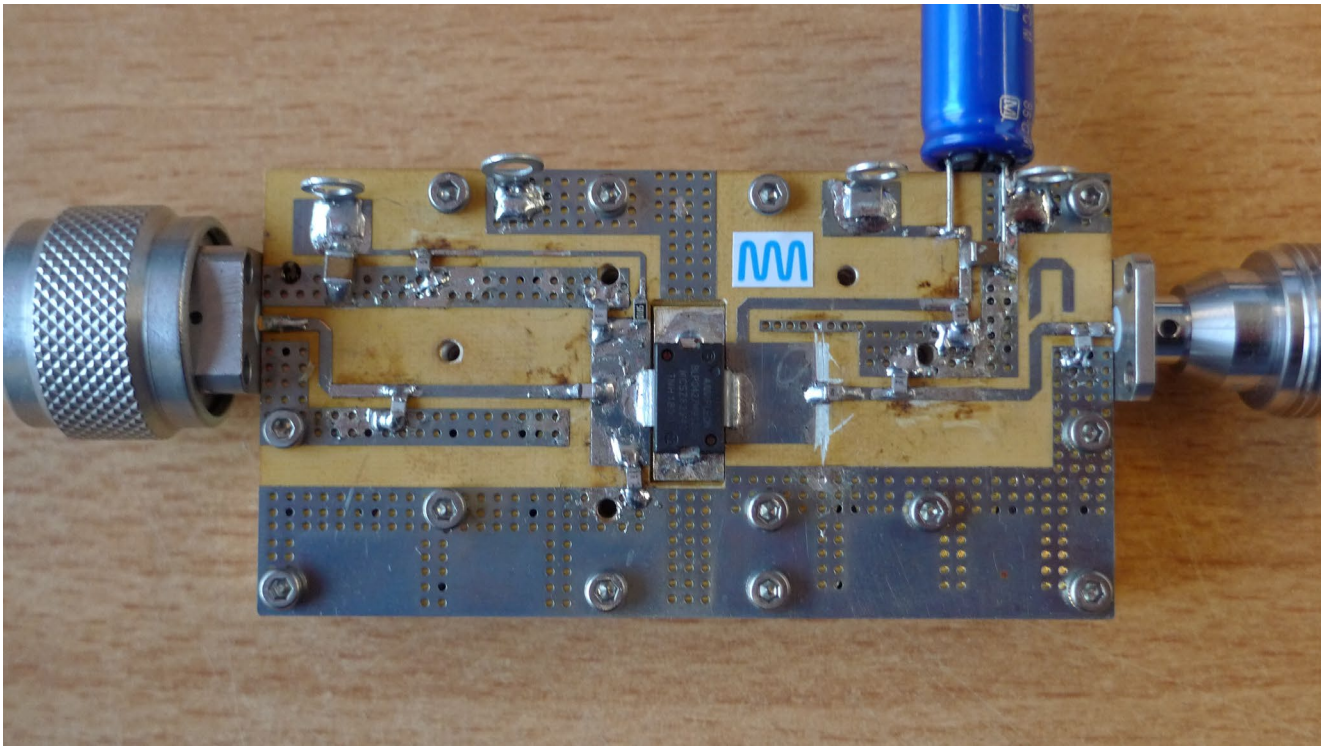

Figure 4 Picture Top View Demo Board

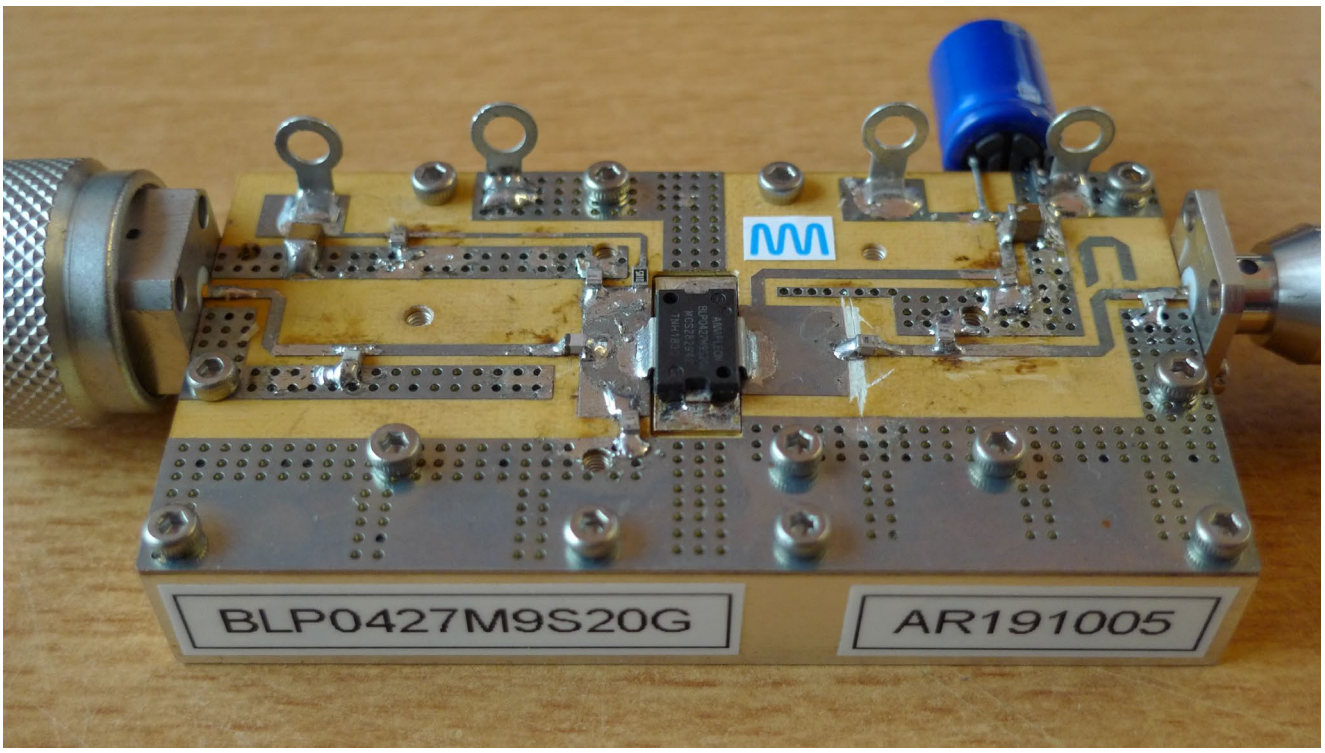

Figure 5 Picture Side View Demo Board

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